Name of Lesson/Topic of Study: Can you hear me now? Cricket Communication Grade Level(s) \_6th

Duration of Lesson/Unit \_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_

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| NEXT GENERATION SUNSHINE STATE STANDARDS: | |
| SC.6.N.1.1  SC.6.N.1.2  SC.6. N.1.3  SC.6. N.1.4  SC.6. N.1.5 | |
| LEARNING GOALS: What will your students will be able to do by the end of class? | |
| Discuss compare and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.  Identify Variables  Collect and Organize Data  Graph Results | |
| KEY VOCABULARY | KEY POINTS. What three to five main ideas or steps will you emphasize in your lesson? |
| Independent and Dependent Variables  Control  Scientific Method  Hypothesis  Conclusion  Data  Results | The steps of the Scientific Method:   1. Recognize the problem 2. Form a hypothesis 3. Test Hypothesis (identify the variables) 4. Analyze Data 5. Form Conclusions |
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|  | Details of activity (include teacher and student notes) | Essential Questions  (Probes/Questions to ask students at every phase in the lesson) | MATERIALS | EVALUATE  Performances at every phase of the lesson. |
| ENGAGEMENT: Object, event or question used to engage students. Connections facilitated between what students know and can do. How will you focus, prepare and engage students for the lesson’s objective? | Discovery education audio: Bring videos of crickets up on smart board and show different crickets calling, jumping, etcetera and bring in crickets. | What do you hear? Do you know what animal that is? Do you think the crickets are communicating? | Audio of crickets and crickets | KWL  K: what do you already know about crickets? |
| EXPLORATION: Objects and phenomena are explored. Hands-on activities, with guidance. How will students engage in open-ended exploration of real phenomena, discussion about their discoveries, ideas, and questions that arise? | Student’s design and build cricket mazes and design a way to test if crickets are communicating. | Why did you design your maze the way that you did?  What is your predicted outcome?  Why did do we have different substrates (connect with concept of variables)? | Radios for classroom | KWL  W: what do you want to know about crickets? |
| EXPLANATION: Provide scientific explanation. How will you convey the knowledge and/or skills of the lesson? What will your students do to process this information? | Explain the Scientific Method and then have the groups explain what their variables were, what their hypothesis was, what their methods were, and what were their results. | How did you complete the steps of the scientific method in your experiment? | N/A | KWL  What did you learn? |
| ELABORATION: Activities allow students to apply concepts in contexts, and build on or extend understanding and skill. In what ways will your different learners attempt the objective on their own? How will students apply the new knowledge and skills to solving a problem or meeting a challenge? | Have the groups discuss what went wrong and how would they change the experiment for next time? | Did your experiment follow the scientific method? | N/A | Evaluate the groups’ responses during discussion. | Evaluate the groups’ responses during discussion. |

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| EXTENSION: How will you incorporate ideas for further exploration? |
| Have them repeat experiment with discussed changes. |

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| DIFFERENTIATION: How will you differentiate your instruction to reach the diversity of learners in your classroom (ELL STRATEGIES/IEP IMPLEMENTATION)? |
| Utilize CRISS strategies. Think, pair, share! |

**A. Engagement:**  
Engagement is a time when the teacher is on center stage. The teacher poses the problem, pre-assesses the students, helps students make connections, and informs students about where they are heading.

The purpose of engagement is to:

* Focus students' attention on the topic.
* Pre-assess what students' prior knowledge.
* Inform the students about the lesson's objective(s).
* Remind students of what they already know that they will need to apply to learning the topic at hand.
* Pose a problem for the students to explore in the next phase of the learning cycle.

Evaluation of Engagement: Evaluation's role in engagement revolves around the pre-assessment. Find out what the students already know about the topic at hand. The teacher could ask questions and have the students respond orally and/or in writing.

**B. Exploration:**   
Now the students are at the center of the action as they collect data to solve the problem. The teacher makes sure the students collect and organize their data in order to solve the problem. The students need to be active. The purpose of exploration is to have students collect data that they can use to solve the problem that was posed.

Evaluation of Exploration: In this portion of the learning cycle the evaluation should primarily focus on process, i.e., on the students' data collection, rather than the product of the students' data collection. Teachers ask themselves questions such as the following:

* How well are the students collecting data?
* Are they carrying out the procedures correctly?
* How do they record the data?
* Is it in a logical form or is it haphazard?

**C. Explanation:**  
In this phase of the process, students use the data they have collected to solve the problem and report what they did and try to figure out the answer to the problem that was presented. The teacher also introduces new vocabulary, phrases or sentences to label what the students have already figured out.

Evaluation of Explanation: Evaluation here focuses on the process the students are using -- how well can students use the information they've collected, plus what they already knew to come up with new ideas? Using questions, the teacher can assess the students' comprehension of the new vocabulary and new concepts.

**D. Elaboration:**   
The teacher gives students new information that extends what they have been learning in the earlier parts of the learning cycle. At this stage the teacher also poses problems that students solve by applying what they have learned. The problems include both examples and non-examples.

Evaluation of Elaboration: The evaluation that occurs during elaboration is what teachers usually think of as evaluation. Sometimes teachers equate evaluation with "the test at the end of the chapter." When teachers have the students do the application problems as part of elaboration, these application problems are "the test."

<http://www.agpa.uakron.edu/p16/btp.php?id=learning-cycle>